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09/805,854	03/13/2001	Guo Ping Zhang	20568000600	4958

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EXAMINER	
PATHAK, SUDHANSHU C	
ART UNIT	**PAPER NUMBER**
2634	7

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/805,854	ZHANG, GUO PING	
	Examiner	Art Unit	
	Sudhanshu C. Pathak	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *March 3rd, 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35 and 38-46* is/are rejected.

7)☒ Claim(s) *36 and 37* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *March 3rd, 2001* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 5.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-to-46 are pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-26, 32-35, 38, 41-46, are rejected under 35 U.S.C. 103(a) as being unpatentable over Haubner et al (4,459,591) in view of Vollmeyer et al. (3,761,621).

Regarding to Claims 1-2, 4-6, 8-12, 14-15, 18-19, 32 & 35, 38, 44-45, Haubner discloses recovering data (messages) using pulse coded modulation schemes (Abstract, lines 1-25 & Column 3, lines 35-45) comprising multiple receivers for detecting multiple pulses and determining the information based on the parameters, of the pulses, measured in the receivers (Abstract, lines 3-25 & Column 1, lines 29-38, 45-56 & Column 2, lines 60-68 & Column 3, lines 1-7 & Fig.'s 2, 6 & Claim 3). Haubner also discloses each receiver to contain a decoding network so that only one of the receivers responds to the received pulses depending on the parameters of the pulses (Column 1, lines 58-68 & Column 2, lines 1-3 & Column 4, lines 49-56). Haubner further discloses determining the information symbols represent a binary value comprising one or more bits (Fig.'s 1-2, 5-6 & Column 2, lines 1-5 & Column 6, lines 8-19, 60-66 & Column 11, lines 17-25 & Column 13, lines 1-15). However,

Haubner does not specify receiving multiple groups of pulses and the second group of pulses immediately follows the first group of pulses.

Vollmeyer discloses transmitting a plurality of, binary coded messages over a common transmission channel using time multiplex techniques (Abstract, lines 1-4). Vollmeyer further discloses each message transmitted is broken into multiple groups of binary coded pulses (Abstract, lines 6-22 & Fig.'s 1-2, 4 & Column 1, lines 10-31 & Column 2, lines 31-67 & Column 4, lines 1-15, 46-65) on a common transmission channel wherein the groups are transmitted one after the other. Vollmeyer also discloses decoding the information from the transmitted signal by the number of pulses and the number of pulses of a given polarity (Abstract, lines 16-22). Haubner further discloses determining the information symbols represent a binary value comprising one or more bits (Abstract, lines 1-10 & Fig.'s 1-2 & Column 1, lines 5-16). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Vollmeyer teaches transmitting binary coded messages in a plurality of pulse groups and these messages can be transmitted in the system as described in Haubner and received by the receivers as described in Haubner so as to minimize the effects of interference on the received signal, thus satisfying the limitations of the claims. Furthermore, the messages transmitted / received can comprise a plurality of symbols wherein the information symbols further comprise one or more bits, this is a matter of design choice and there is no criticality in the limitation and the receiver as described in Haubner detects, measures and decodes each group of pulses transmitted in groups as described in Vollmeyer.

Regarding to Claims 3, 34, 43, Haubner in view of Vollmeyer discloses a method for recovering data comprising transmitting and detecting multiple group of pulses, measuring one or more parameters of the pulses and determining an information data based on one or more parameters of the pulses as described above. Haubner further discloses one or more parameters measured based on the timing relationship between the groups of the pulses (Abstract, lines 15-25 & Column 2, lines 59-68 & Claim 3 & Column 11, lines 58-68 & Column 12, lines 1-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Haubner in view of Vollmeyer satisfies the limitation of the claim.

Regarding to Claims 7 & 13, 16, 17, 33, 46, Haubner in view of Vollmeyer discloses a method for recovering data comprising detecting multiple group of pulses, measuring one or more parameters of the pulses and determining an information data based on one or more parameters of the pulses as described above. Haubner further discloses the selecting and measuring one of various parameters to decode the messages received by the receivers to include pulse widths, pulse gap widths, number of pulses (Abstract, lines 15-25 & Column 2, lines 59-68). Furthermore, Haubner implements the pulse coding wherein the various parameters of the pulse train are varied so as to vary the coding of the information data and is used by the receivers to distinguish the decoding between which receiver to be used to decoding the received signal.

Vollmeyer also discloses decoding the information from the transmitted signal by the number of pulses and the number of pulses of a given polarity (Abstract, lines

16-22). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Haubner in view of Vollmeyer discloses a pulse coded modulation scheme wherein the various parameters of the pulses like the no. of pulses, width of pulses, pulse group period are used to determine the information transmitted / received. Selecting and measuring the specified parameter(s) is a matter of design choice and there is no criticality in selecting one or more of the parameters in decoding the information transmitted / received.

Regarding to Claim 20, Haubner in view of Vollmeyer discloses a method for recovering data comprising transmitting and detecting multiple group of pulses, measuring one or more parameters of the pulses and determining an information data based on one or more parameters of the pulses as described above. Haubner further discloses transmitting / receiving control and synchronization messages between the microcontroller and the receivers (Column 3, lines 35-45). However, Haubner does not specify transmitting multiple sets of pulse groups and having at least one common pulse group.

Vollmeyer discloses transmitting / receiving a plurality of binary coded messages over a common transmission channel using time multiplex techniques (Abstract, lines 1-4). Vollmeyer also discloses each message comprising a plurality of pulse-coded groups (Abstract, lines 6-22). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Vollmeyer transmits messages in pulse coded groups and thus if the synchronization sequence between the messages is common the synchronization pulse can be considered a common

pulse group between multiple messages (multiple set of pulse groups), and this messaging and multiplexing scheme can be implemented in the system as described in Haubner so as to better synchronize and distinguish the multiple messages and thus the decoding network in the receivers as described in Haubner can accurately measure and map the pulse group, thus satisfying the limitations of the claim.

Regarding to Claims 21-23 & 25-26, 41, 42, Haubner discloses recovering data (messages) using pulse coded modulation schemes (Abstract, lines 1-25 & Column 3, lines 35-45) comprising multiple receivers for detecting multiple pulses and determining the information based on the parameters, of the pulses, measured in the receivers (Abstract, lines 3-25 & Column 1, lines 29-38, 45-56 & Column 2, lines 60-68 & Column 3, lines 1-7 & Fig.'s 2, 6 & Claim 3). Haubner also discloses each receiver to contain a decoding network so that only one of the receivers responds to the received pulses depending on the parameters of the pulses (Column 1, lines 58-68 & Column 2, lines 1-3 & Column 4, lines 49-56). Haubner further discloses determining the information symbols represent a binary value comprising one or more bits (Fig.'s 1-2, 5-6 & Column 2, lines 1-5 & Column 6, lines 8-19, 60-66 & Column 11, lines 17-25 & Column 13, lines 1-15). Haubner further discloses transmitting / receiving control and synchronization messages between the microcontroller and the receivers (Column 3, lines 35-45). Haubner also discloses the decoding network measuring the parameters and mapping the measurements to the data symbols so as respond to the message (Abstract, lines 23-25 & Column 2,

lines 1-10, 35-45). However, Haubner does not specify transmitting multiple sets of pulse groups and having at least one common pulse group.

Vollmeyer discloses transmitting a plurality of, binary coded messages over a common transmission channel using time multiplex techniques (Abstract, lines 1-4). Vollmeyer further discloses each message transmitted is broken into multiple groups of binary coded pulses (Abstract, lines 6-22 & Fig.'s 1-2, 4 & Column 1, lines 10-31 & Column 2, lines 31-67 & Column 4, lines 1-15, 46-65) on a common transmission channel wherein the groups are transmitted one after the other. Vollmeyer also discloses decoding the information from the transmitted signal by the number of pulses and the number of pulses of a given polarity (Abstract, lines 16-22). Haubner further discloses determining the information symbols represent a binary value comprising one or more bits (Abstract, lines 1-10 & Fig.'s 1-2 & Column 1, lines 5-16). Vollmeyer discloses transmitting / receiving a plurality of binary coded messages over a common transmission channel using time multiplex techniques (Abstract, lines 1-4). Vollmeyer also discloses each message comprising a plurality of pulse-coded groups (Abstract, lines 6-22). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Vollmeyer transmits messages in pulse coded groups and thus if the synchronization sequence between the messages is common the synchronization pulse can be considered a common pulse group between multiple messages (multiple set of pulse groups), and this messaging and multiplexing scheme can be implemented in the system as described in Haubner so as to better synchronize and distinguish the multiple

messages and thus the decoding network in the receivers as described in Haubner can accurately measure and map the pulse group, thus satisfying the limitations of the claim. Furthermore, the exchanges of pulse-coded messages as described in Vollmeyer are received in the receiver as described in Haubner and detecting and decoding the multiple group of pulses.

Regarding to Claim 25, Haubner in view of Vollmeyer discloses a method for recovering data comprising detecting multiple group of pulses, measuring one or more parameters of the pulses and determining an information data based on one or more parameters of the pulses as described above. Haubner further discloses the selecting and measuring one of various parameters to decode the messages received by the receivers to include pulse widths, pulse gap widths, number of pulses (Abstract, lines 15-25 & Column 2, lines 59-68). Furthermore, Haubner implements the pulse coding wherein the various parameters of the pulse train are varied so as to vary the coding of the information data and is used by the receivers to distinguish the decoding between which receiver to be used to decoding the received signal.

Vollmeyer also discloses decoding the information from the transmitted signal by the number of pulses and the number of pulses of a given polarity (Abstract, lines 16-22). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Haubner in view of Vollmeyer discloses a pulse coded modulation scheme wherein the various parameters of the pulses like the no. of pulses, width of pulses, pulse group period are used to determine the information

transmitted / received. Selecting and measuring the specified parameter(s) is a matter of design choice and there is no criticality in selecting one or more of the parameters in decoding the information transmitted / received.

4. Claims 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haubner et al (4,459,591) in view of Vollmeyer et al. (3,761,621) in further view of Parker (4,169,264).

Regarding to Claims 27-31, Haubner discloses recovering data (messages) using pulse coded modulation schemes (Abstract, lines 1-25 & Column 3, lines 35-45) comprising multiple receivers for detecting multiple pulses and determining the information based on the parameters, of the pulses, measured in the receivers (Abstract, lines 3-25 & Column 1, lines 29-38, 45-56 & Column 2, lines 60-68 & Column 3, lines 1-7 & Fig.'s 2, 6 & Claim 3). Haubner also discloses each receiver to contain a decoding network so that only one of the receivers responds to the received pulses depending on the parameters of the pulses (Column 1, lines 58-68 & Column 2, lines 1-3 & Column 4, lines 49-56). Haubner further discloses determining the information symbols represent a binary value comprising one or more bits (Fig.'s 1-2, 5-6 & Column 2, lines 1-5 & Column 6, lines 8-19, 60-66 & Column 11, lines 17-25 & Column 13, lines 1-15). Haubner also discloses counting the pulses so as to decode the information symbols (Abstract, lines 15-25 & Fig. 5 & Column 2, lines 59-68 & Column 3, lines 1-7 & Column 5, lines 66-68 & Column 6, lines 1-8). However, Haubner does not specify receiving multiple groups of pulses and the second group of pulses immediately follows the first group of pulses.

Vollmeyer discloses transmitting a plurality of, binary coded messages over a common transmission channel using time multiplex techniques (Abstract, lines 1-4). Vollmeyer further discloses each message transmitted is broken into multiple groups of binary coded pulses (Abstract, lines 6-22 & Fig.'s 1-2, 4 & Column 1, lines 10-31 & Column 2, lines 31-67 & Column 4, lines 1-15, 46-65) on a common transmission channel wherein the groups are transmitted one after the other. Vollmeyer also discloses decoding the information from the transmitted signal by the number of pulses and the number of pulses of a given polarity (Abstract, lines 16-22). Haubner further discloses determining the information symbols represent a binary value comprising one or more bits (Abstract, lines 1-10 & Fig.'s 1-2 & Column 1, lines 5-16). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Vollmeyer teaches transmitting binary coded messages in a plurality of pulse groups and these messages can be transmitted in the system as described in Haubner and received by the receivers as described in Haubner so as to minimize the effects of interference on the received signal, thus satisfying the limitations of the claims. Furthermore, the messages transmitted / received can comprise a plurality of symbols wherein the information symbols further comprise one or more bits, this is a matter of design choice and there is no criticality in the limitation and the receiver as described in Haubner detects, measures and decodes each group of pulses transmitted in groups as described in Vollmeyer. However, Haubner in view of Vollmeyer does not disclose detection windows, wherein the pulses within the windows are counted.

Parker discloses a synchronous digital delay line decoder, comprising multiple detection windows each detection window being delayed relative to the group of pulses (Abstract, lines 1-16 & Fig. 1, 2, 3b & Column 1, lines 22-30 & Column 3, lines 15-68 & Column 4, lines 32-68 & Column 5, lines 1-25). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Parker teaches implementing multiple detection windows so as to decode pulses identifying the information symbols as described in the method and system as described in Haubner in view of Vollmeyer, thus satisfying the limitation of the claim. Furthermore, depending on the length of the messages the pulse counts would be different.

5. Claims 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haubner et al (4,459,591) in view of Vollmeyer et al. (3,761,621) in further view of Thomas et al. (6,278,754).

Regarding to Claims 39-40, Haubner in view of Vollmeyer discloses a method for recovering data comprising transmitting and detecting multiple group of pulses, measuring one or more parameters of the pulses and determining an information data based on one or more parameters of the pulses as described above. However, Haubner in view of Vollmeyer does not specify the decoder circuit to be implemented as a field programmable gate array (FPGA) and or as an application specific integrated circuit (ASIC).

Thomas discloses a demodulator (decoder) implemented in a field programmable gate array (FPGA) and or as an application specific integrated circuit (ASIC)

(Column 3, lines 50-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Thomas teaches implementing the demodulator / decoder operation as an ASIC or a FPGA so as to minimize the components and size of the decoder, thus satisfying the limitation of the claim.

Allowable Subject Matter

6. Claims 36-37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhanshu C. Pathak whose telephone number is (703) 305-0341. The examiner can normally be reached (Monday-Friday from 8:30 AM to 5:30 PM).

   If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached at (703) 305-4714.

   Any response to this action should be mailed to:

   - Commissioner of Patents and Trademarks Washington, D.C. 20231

   Or faxed to:

   - (703) 872-9314 (for Technology Center 2600 only)

   Hand-delivered responses should be brought to:

   - Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to:

Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

STEPHEN CHIN
SUPERVISORY PATENT EXAMINE
TECHNOLOGY CENTER 2600